in the near field downstream of the modulator, having individual receivers configured to generate electric signals in accordance with centrosymmetrically trichromatic RGB diffraction orders of the diffraction pattern; an evaluation device for the electric signals generated by the individual receivers; and at least one light-diffusion glass arranged in one of a pupillary plane of the lens and a pupillary plane conjugate to the lens.

2. (Amended) The grating optical sensor as claimed in claim 1, wherein the light-diffusion glass has a grating structure.

3. (Amended) The grating optical sensor as claimed in claim 1, wherein the glass has a diffusion characteristic selected so as to produce an image of the object space with uniformly superimposed background radiation from the object space.

Cont'd B1

4. (Twice Amended) The grating optical sensor as claimed in claim 1, wherein a spectral transmission of the lens, the diffusion glass, and the modulator is limited to the visible region of electromagnetic radiation.

5. (Amended) The grating optical sensor as claimed in claim 4, wherein the spectral transmission is limited to the wavelength region of 380-780 nm.

6. (Twice Amended) The grating optical sensor as claimed in claim 1, wherein the individual receivers are set to an identical spectral sensitivity for a radiation source emitting white light.

7. (Twice Amended) The grating optical sensor as claimed in claim 1, wherein the individual receivers assigned to the same chromatic diffraction order in the trichromatic RGB diffraction pattern are interconnected to form a local chromatically additive brightness value for each chromatic diffraction order.

8. (Twice Amended) The grating optical sensor as claimed in claim 7, wherein the evaluation device includes a comparison arrangement for determining which trichromatic diffraction pattern has the best agreement between the local chromatically additive brightness values.

9. (Twice Amended) The grating optical sensor as claimed in claim 1, wherein the individual receivers assigned to the trichromatic diffraction pattern are interconnected to form a local trichromatically additive brightness value.

10. (Twice Amended) The grating optical sensor as claimed in claim 8, wherein the evaluation device includes a white standard forming unit whose output signal is a white standard signal and is respectively assigned to that local diffraction pattern having the best agreement between the chromatically additive brightness values and a simultaneously maximum trichromatically additive brightness value.

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11. (Amended) The grating optical sensor as claimed in claim 10, further comprising an adapter provided for varying a 3D grating constant of the modulator as a function of a variation in an agreement between the local chromatically additive brightness values of the diffraction pattern forming the white standard signal.

12. (Amended) The grating optical sensor as claimed in claim 11, wherein the adapter includes a thermal radiation source directed toward the modulator.

13. (Amended) The grating optical sensor as claimed in claim 12, wherein the adapter is assigned a controller which keeps a radiation intensity of the thermal radiation source constant during assignment of a new white standard signal.

14. (Twice Amended) The grating optical sensor as claimed in claim 10, wherein the evaluation device includes a color value forming unit whose output signal respectively corresponds to the sum of the local chromatically additive brightness values, referred to the white standard signal, of said local diffraction pattern having the best agreement.

15. (Amended) A method for generating a white standard signal, comprising:

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providing a grating optical sensor, the sensor comprising: a lens imaging an object space; a diffractive hexagonal 3D grating optical modulator in the image plane of the lens to form at least one trichromatic RGB diffraction pattern; a photoelectric receiver arrangement arranged in the near field downstream of the modulator, having individual receivers configured to generate electric signals in accordance with centrosymmetrically trichromatic

RGB diffraction orders of the diffraction pattern; and an evaluation device for the electric signals generated by the individual receivers;

superimposing into the image plane an incoherent background radiation assigned to the object space by diffuse scattering in one of the pupil of the imaging lens and a plane conjugate to the lens; and

forming a white standard signal from the diffraction pattern, assigned to a colorless part of the object space, with identical chromatically additive brightness values and a maximum trichromatically additive brightness value.

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16. (Amended) The method as claimed in claim 15, wherein, when varying an illumination of the object space, grating constants of the modulator are varied by thermal influence until a new white standard signal is produced in the trichromatic diffraction pattern of a colorless part of the object space.

17. (Twice Amended) The method as claimed in claim 15, wherein the sum of the chromatically additive brightness values referred to a white standard signal is formed in order to generate a color value signal from the diffraction pattern assigned to a colored part of the object space.

<u>In the Abstract</u>:

Please add the following Abstract:

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A grating optical sensor includes: a lens imaging an object space; a diffractive hexagonal 3D grating optical modulator in the image plane of the lens to form at least one trichromatic RGB diffraction pattern; a photoelectric receiver arrangement arranged in the near field downstream of the modulator, having individual receivers configured to generate electric signals in accordance with centrosymmetrically trichromatic RGB diffraction orders of the diffraction pattern; an evaluation device for the electric signals generated by the individual receivers; and at least one light-diffusion glass arranged in one of a pupillary plane of the lens and a pupillary plane conjugate to the lens.